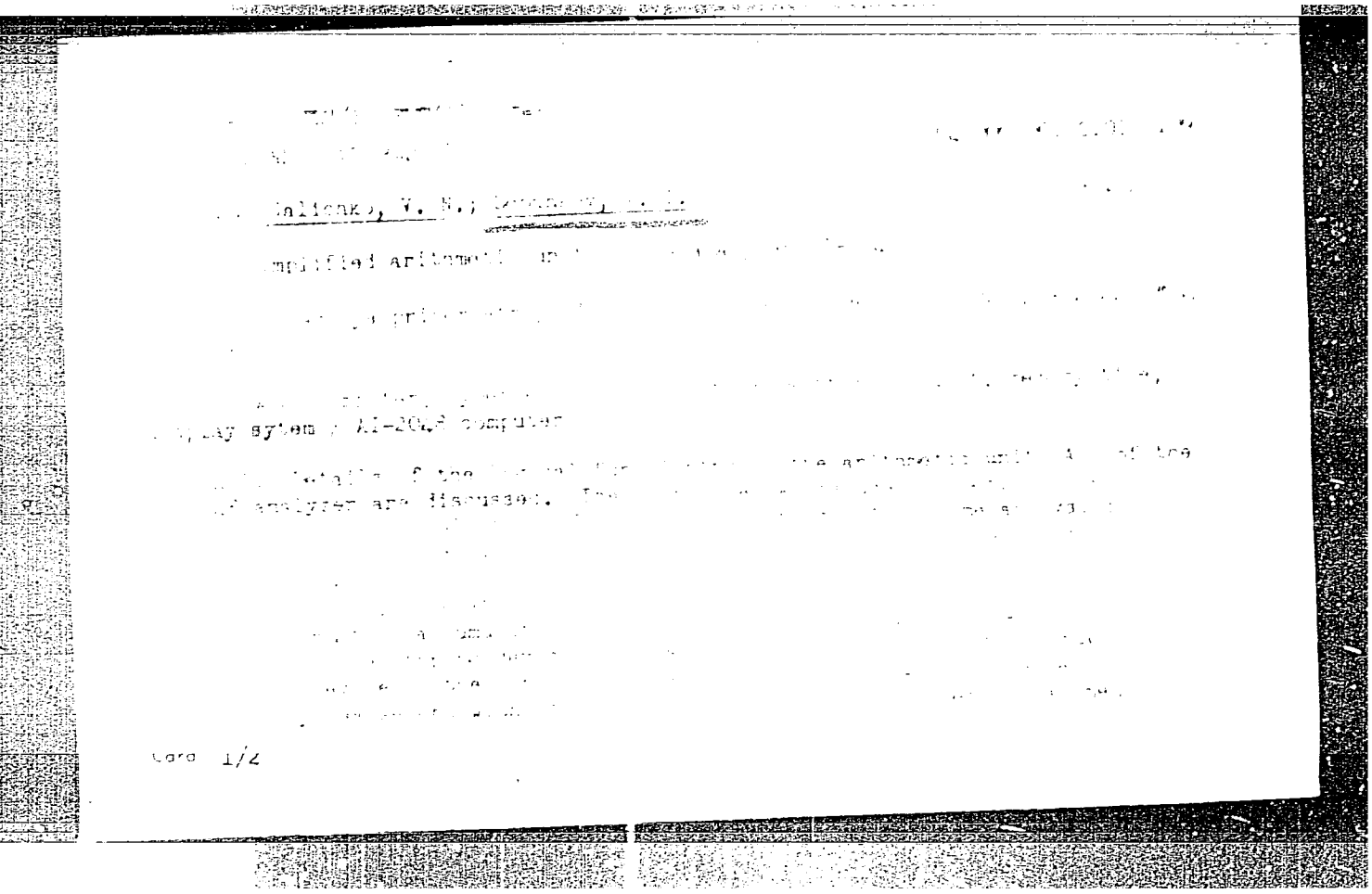
MARKIN, V.N.; DOBANEVA, O.A.; VOLKACHEV, S.S. [deceased]

Crystal chemistry of vanadium coordination compounds. Part 1: Synthesis and X-ray diffraction study of some coordination compounds of vanadium (IV). Vest. LGU 20 no.16:153-157 '65. (MIRA 18:9)



ACCESSION NR: AT5004668

device, and up to 80 kilocycles/second with erasure of the information in the ... memory device; ...

... tables.

... N: none

... 00

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930320005-9"

ASTAKH[illegible], V.I.; [illegible]BLOV, V.V.

Measuring thermoelectric characteristics of semiconductors in solid and liquid phases at high temperatures. Izm.tekh. no.9:22-24 S '65. (MIRA 18:10)

ADAMOVICH, T.P.; SVIRIDOV, V.V.; LOBANOK, A.D.

Particular features of crystallization in the systems of coprecipitation of copper hydroxides and trivalent iron. Dokl. AN BSSR 8 no.5:312-315 My '64. (MIRA 17:9)

1. Belorusskiy gosudarstvennyy universitet imeni Lenina. Predstavleno akademikom AN BSSR N.F. Yermolenko.

L 62099-65 EWT(m)

ACCESSION NR: AP501??

AUTHOR: Lobanok, A. G.; Bulanov, ...

TITLE: Protective effect on irradiated mice of a water-soluble polysaccharide from a yeast-like microorganism Pullularia

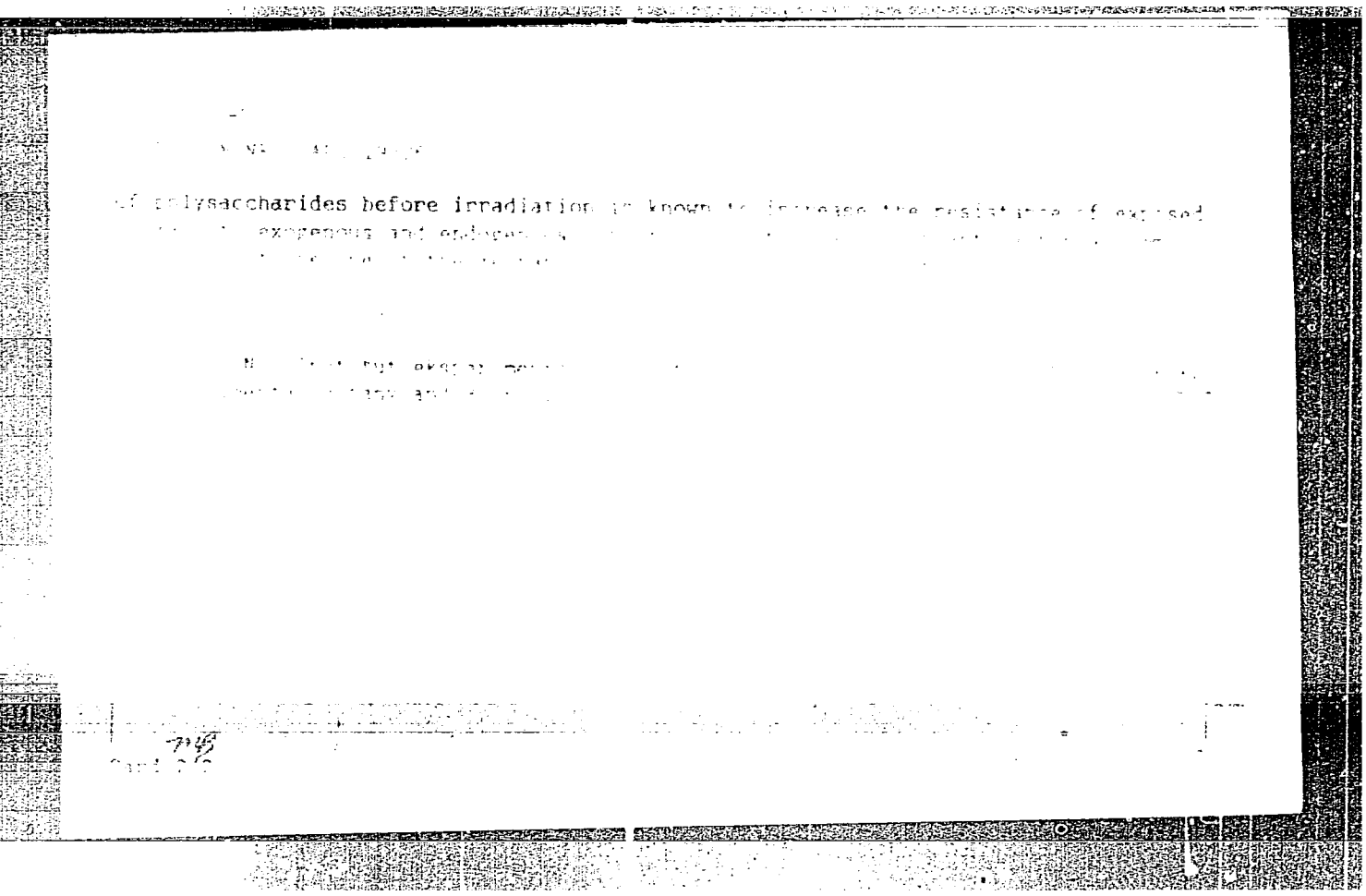
SOURCE: AN BSSR. Doklady, v. 9, no. 7, 1965, 477-479

TOPIC TAGS: radiation protection, yeast, polysaccharide, ...

ABSTRACT: Intraperitoneal injection of inbred mice of the ... saccharide obtained from the micro... increased the survival rate and mark... with the control. ...

... irradiation increased ... the ... was ...

...aride and the time of administration before injection. The administration



BULANOV, P.A. [Bulanau, P.A.]; LOBANOK, A.G. [Labanok, A.H.]

Microbial polysaccharides and their biological activity.
Vestsi AN BSSR. Ser. biial. nav. no.2:71-77 '65.
(MIRA 18:12)

LORANOK, V.F.

Make wider use of asbestos ballast. Put' i put.khoz. no.11:5-6 N '59. (MIRA 13:4)

1. Nachal'nik otdela puti, zdaniy i sooruzheniy na Tyumenskoy distantsii, stantsiya Tyumen', Sverdlovskoy dorogi.
(Ballast (Railroads)) (Asbestos)

LOBANOK, V.F.

Outstanding section. Put' i put.khoz. 5 no8:21 Ag '61.
(MIRA 14:10)

1. Nachal'nik otdela puti, zdaniy i sooruzheniy Sverdlovskoy dorogi, st. Tyumen'.
(Railroads--Maintenance and repair)

LODA[illegible], A.

Regular activities of forest workers. Okhr. truda i sots. strakh. 4 no.9:8-9 S '61. (MIRA 14:10)

1. Predsedatel' [illegible] "[illegible] Oktyabr'", g. Arkhangel'sk.

(ARCHANGEL--WOOD-USING INDUSTRIES--HYGIENIC ASPECTS)

LOBANOV, A.

AID P - 401

Subject : USSR/Aeronautics

Card 1/1 Pub. 135, 15/18

Author : Lobanov, A., Lt. Col. Eng., and Lyubchenko, V., SenLt., Eng.

Title : Radio location distrubances and the fight against them (According to the foreign press)

Periodical : Vest. vozd. flota, 8, 71-79, Ag 1954

Abstract : The author gives a general explanation of the problem and then considers in some detail: 1) static distrubances, 2) active distrubances, and 3) the fight against radio location disturbances. Diagrams.

Institution : None

Submitted : No date

LOBANOV, A.A.

Use of compensators for increasing voltage in coal mines. Ugol' 30 no.2:40 F '55. (MLRA 8:4)

1. KNIUI
(Electricity in mining) (Electric transformers)

LOBANOV, A.A., mayor meditsinskoy sluzhby

Symptomatology of hypertensive forms of neurocirculatory dystonia. Voen.med.zhur. no.3:42-48 '59. (MIRA 12:6)
(NEUROCIRCULATORY ASTHENIA, compl.
hypertension, clin. picture (Rus))
(HYPERTENSION, compl.
neurocirc. asthenia, clin. picture (Rus))

LOBANOV, A.A., mayor meditsinskoy sluzhby

Anaphylactic shock following administration of penicillin. Voen.-med. zhur. no.5:40-41 My '61. (MIRA 14:8)
(PENICILLIN) (ALLERGY)

LOBANOV, A.A.; MEDKOVA, Ye.A.

Clinical aspects and therapy of telangiectasis (Osler's disease). Sov. med. 24 no. 5:91-97 My '60. (MIRA 13:10)

1. Iz Glavnogo voyennogo gospitalaya imeni akademika N.N. Burdenko (nachal'nik - general-mayor meditsinskoy slushby L.I. Lyalin).
(TELANGIECTASIS)

LOBANOV, A.A.

Outcome of erythremia. Khim. med. 38 no.5:36-41 My '60.
(MIRA 13:12)

(ERYTHREMIA)

LOBANOV, A.A., kand.med.nauk

Prolonged maintenance therapy with sulfanilamide preparations in diabetes mellitus. Sov. med. 28 no.7:3-8 Jl '64.

(MIRA 18:8)

1. Glavnyy voyennyy gospital' imeni Burdenko (nachal'nik L.I.Lyalin), Moskva.

GOL'DSHTEYN, B.L.; GUSAROV, B.G.; LOBANOV, A.G.; SINYAK, Yu.Ye.; TERESHCHENKO, A.P.; CHIZHOV, S.V.

Development of a physicochemical chain of utilization for a prolonged space flight. Probl. kosm. biol. 3:193-197 '64.
(MIRA 17:6)

ACCESSION NR: AT4037681 S/2865/64/003/000/0089/0103

AUTHOR: Gol'dshvend, B. L.; Gusarov, B. G.; Lobanov, A. G.; Sinyak, Yu. Ye.; Tereshchenko, A. P.; Chizhov, S. V.; Shilov, V. M.

TITLE: The recycling problem under prolonged spaceflight conditions

SOURCE: AN SSSR. Otdeleniye biologicheskikh nauk. Problemy* kosmicheskoy biologii, v. 3, 1964, 89-103

TOPIC TAGS: manned space flight, life support, closed ecological system, waste recycling, respiration, toxicology, algae, nutrition, photosynthesis

ABSTRACT: Biological recycling of wastes on spaceships can utilize both aerobic and anaerobic methods. Apparently liquid wastes can be processed by means of aerobic oxidation, while solid wastes require anaerobic methods. The advantages of the aerobic method are: the high speed of processing in an aerotank, oxidation of organic substances down to CO_2, and the ability to control the speed of the process by means of regulating the rate of oxygen flow. The disadvantage of this method is the large amount of oxygen required. The advantages of the anaerobic method consist of the absence of large air requirements and a small energy requirement. The disadvantages of this latter process are the slow rate of processing

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ACCESSION NR: AT4037681

and the production of a large amount of harmful gases, particularly methane, making the mixture explosive. Another method which can be utilized in a closed ecological system is a biological method of processing wastes with participation of photosynthesis of algae. The advantage of this method is that it takes place in the light and the oxygen required for bacterial oxidation of organic substances is obtained from the photosynthetic activity. Bacterial mineralization of organic substances is accompanied by photosynthetic building up of cell bodies of the algae. Consequently, this process involves the utilization of substances contained in human and animal wastes for obtaining algae which can, in turn, serve as a source of food for man and animals. The following are the chief disadvantages of the above indicated biological methods: small probability of complete recycling of wastes; the difficulty in obtaining products which are qualitatively and quantitatively constant; the uncertainty of adaptation on the part of microorganisms to unknown space-flight conditions (the possibility of mutations, etc.); the difficulty in controlling the rate of the processes; and the possibility of the appearance and accumulation of toxic by-products. Physicochemical methods of waste recycling can also be used. By means of these methods, it is possible to separate the soluble from the insoluble parts, extract useful substances from solvents, provide for combustion of insoluble substances to obtain gases and solids, and synthesize the gases and solids into required substances. Recycling of wastes based on

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ACCESSION NR: AT4037681

physicochemical methods can include the following: extraction of substances from wastes which can be used directly, mineralization of organic substances, obtainment of products of definite chemical composition from ash and gases, and synthesis of nourishing solutions. The recycling of carbon and nitrogen in a closed ecological cycle can be performed by physicochemical processes. CO_2 gas exhaled by man can be used directly by plants. Soluble carbon compounds can also be utilized by plants for nourishment. Insoluble carbon compounds can be transformed into CO_2 by means of heat treatment. The CO_2 thus obtained can either be stored for supply purposes or can go directly to the greenhouse. Nitrogen products found in wastes can be extracted and used for feeding plants and possibly even animals. The remaining nitrogen compounds can be used for mineralization, which can be accomplished by various physicochemical means. An outline of such a scheme utilizing physicochemical processes can include the following: a unit for the collection of wastes, from which the products proceed to a second unit where those that can be utilized by man or other living organisms are extracted directly. The remaining substances proceed to a mineralization unit. While the gases produced during the mineralization process are trapped and separated, the insoluble inorganic salts are transformed into soluble ones in the next unit. Part of them go to living organisms while the remainder go to a unit for obtaining inorganic compounds. The by-products thus obtained are then converted into nourishing mixtures.

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At the present time it is difficult without experimental data to make a precise evaluation of this type of cycle, but it is possible to estimate the weight of such a cycle as 400 to 500 kg for a crew of five. Even if this weight were to be doubled, it would still be considerably less than the required weight of mineral salts for green houses in a life-support system based on stored supplies. A good recycling system should have the following characteristics: a minimum system of units necessary for processing wastes, use of common processes for transformation of elements contained in wastes into definite compounds, a maximum rate of processing these products, the inclusion of only those substances which are involved in the recycling. In addition to the above, it should have the following characteristics: minimum weight and size, minimum energy requirements, simple reliable construction, use of stable and highly resistant materials, means of preventing toxic substances from seeping out into the space cabin, and absence of processes not required for recycling. A comparison of biological methods, on the one hand, and physicochemical methods, on the other, shows that the latter have a number of advantages, including the possibility of complete recycling of wastes, short duration of the recycling process, the possibility of obtaining separate substances and required nourishing solutions of predetermined composition, and the use of processes which are widely used in chemical engineering. The disadvantages include high energy utilization and complexity of equipment. However, these are offset, to

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ACCESSION NR: AT4037681

a certain extent, by the use of solar energy and the latest materials and methods of physicochemical processing. It should be noted that each mission requires the recycling of only those products required by that mission. This means that, in some cases, life-support systems will require only the regeneration of water. The fact that physicochemical processing has been very well studied in comparison to biological processing makes it probable that physicochemical recycling will be used in the first experimental closed ecological systems. However, it should be borne in mind that the optimum system of utilization will be based on the use of biological as well as physicochemical processes.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00

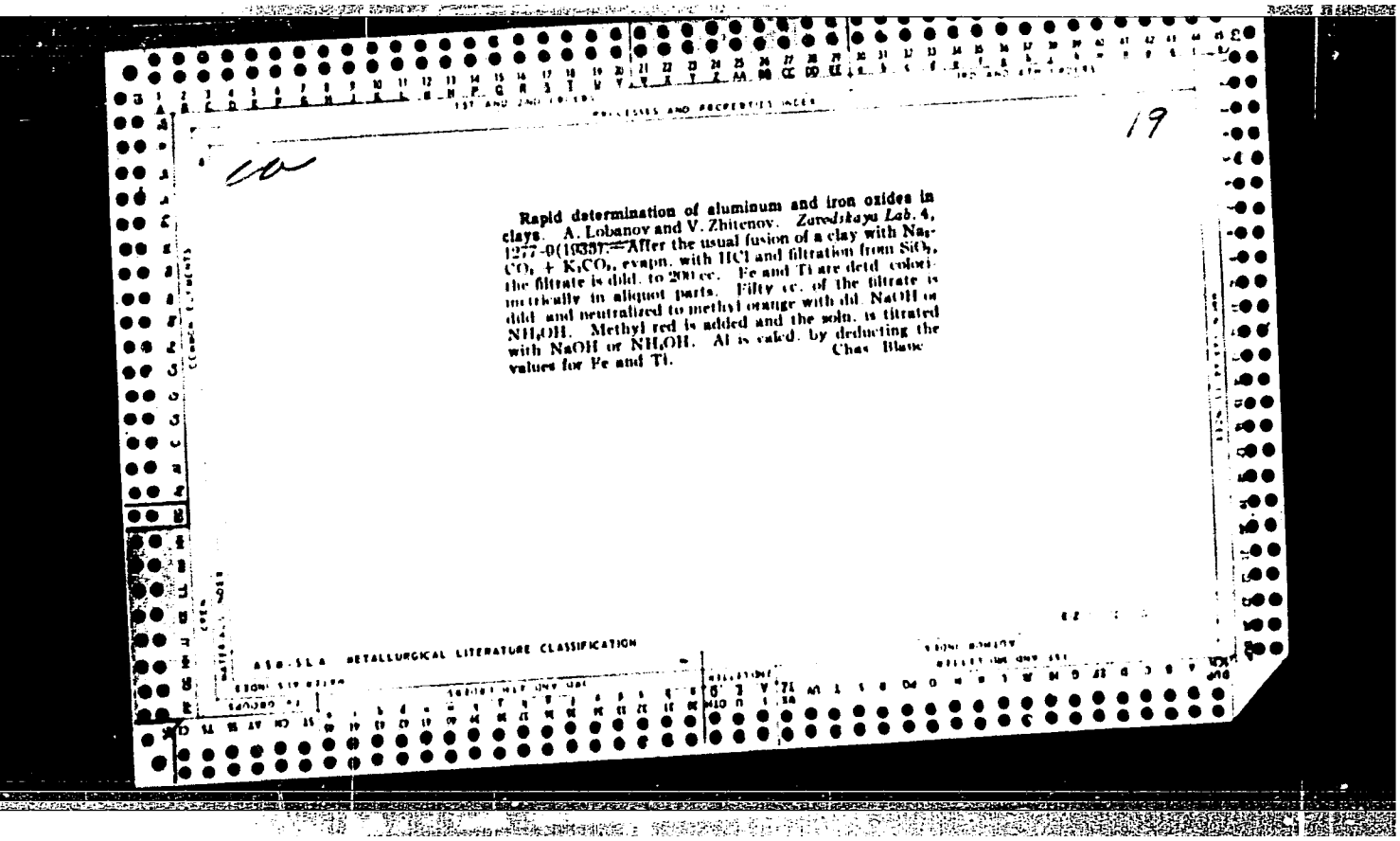
SUB CODE: PH, LS NO REF SOV: 022 OTHER: 008

Card 5/5

LOBANOV, A.I.

TERENT'YEV, V.L., inzhener; LOBANOV, A.I.

High-speed cutting on multispindle lathes. Sel'khozmashina (MLRA 7:7)
no. 7:30-32 Jl '54.
(Turning) (Metal cutting)

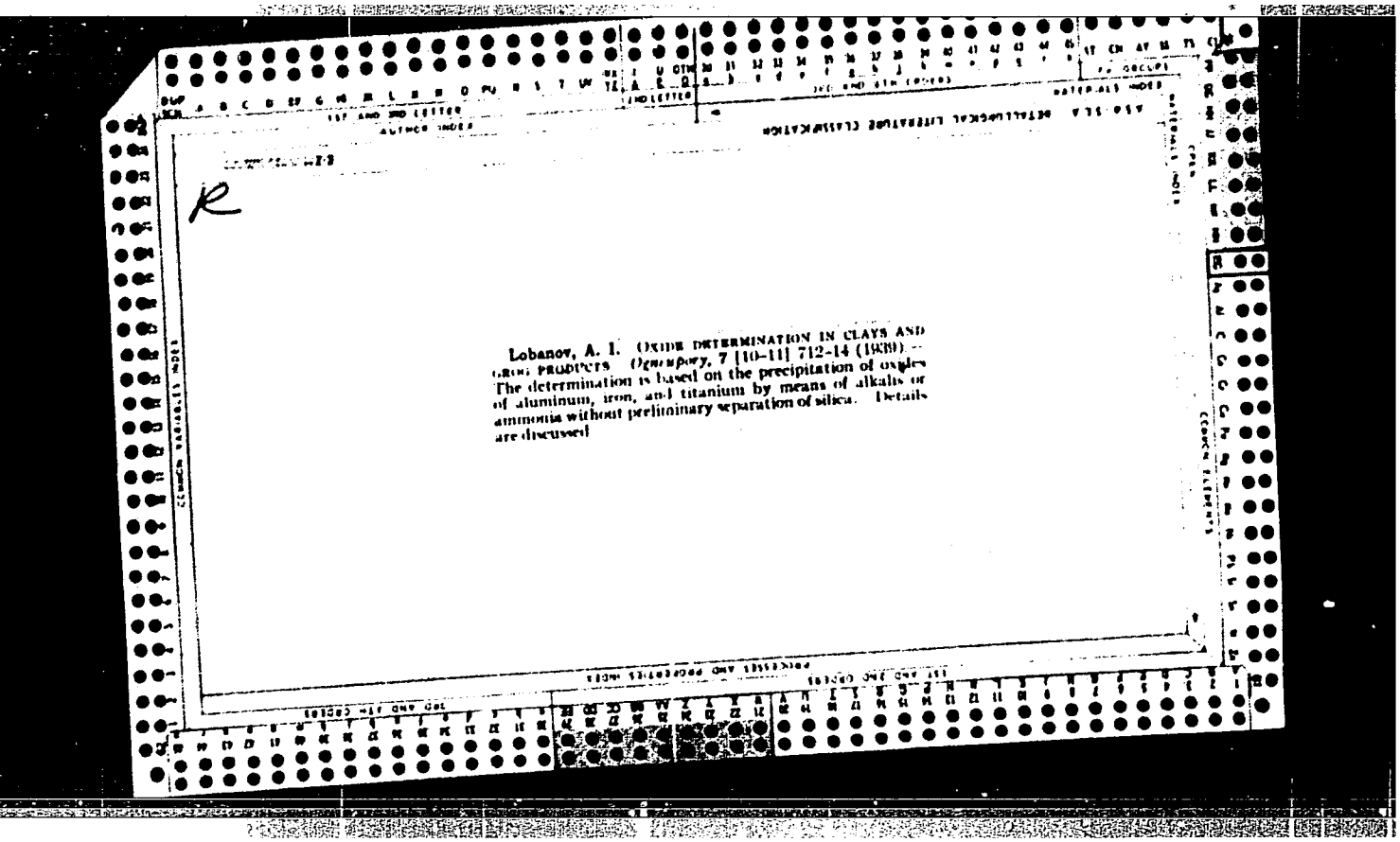


19

Rapid determination of aluminum and iron oxides in clays. A. Lobanov and V. Zhitenov. *Zavodskaya Lab.* 4, 1277-9(1935).—After the usual fusion of a clay with Na_2CO_3 + K_2CO_3, evapn. with HCl and filtration from SiO_2, the filtrate is dild. to 200 cc. Fe and Ti are detd. colorimetrically in aliquot parts. Fifty cc. of the filtrate is dild. and neutralized to methyl orange with dil. NaOH or NH_4OH. Methyl red is added and the soln. is titrated with NaOH or NH_4OH. Al is calc'd. by deducting the values for Fe and Ti.

Chas. Blanc

A S B - S L A METALLURGICAL LITERATURE CLASSIFICATION



Lobanov, A. I. OXIDE DETERMINATION IN CLAYS AND CERAMIC PRODUCTS *Ogneupory*, 7 [10–11] 712–14 (1938) — The determination is based on the precipitation of oxides of aluminum, iron, and titanium by means of alkalis or ammonia without preliminary separation of silica. Details are discussed

LOBANOV A. I.

T. 10T40

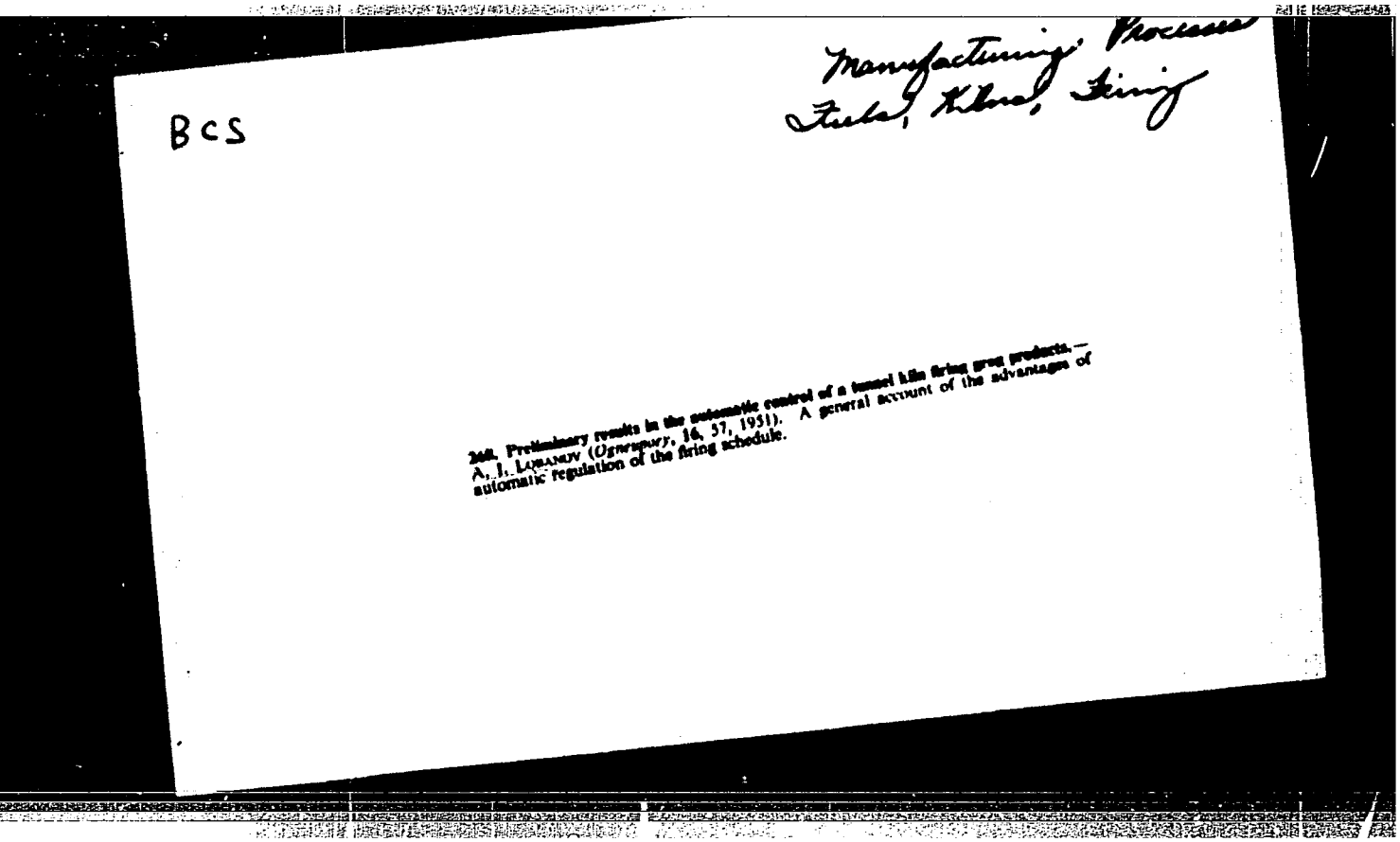
USSR/Refractory Materials May 1947
Clays, Aluminum containing

"A Quick Method of Determining Al_2O_3 - TiO_2 and Fe_2O_3 in Clays and Refractory Brick Products," A. I. Lobanov, 4 pp

"Ogneupory" Vol XII, No 5

"Describes a method of analysis requiring only 3 to 4 hours from the beginning of the fusion process. The method is very simple, easily learned, and requires little handling. The necessary reagents are to be found in any factory laboratory where silicates are analyzed. It has an accuracy of ± 5%.

10T40



BCS

Manufacturing Processes
Steel, Rolled, Firing

248. Preliminary results in the automatic control of a tunnel kiln firing grog products.—
A. J. LUBIMOV (*Ogneupory*, 16, 57, 1951). A general account of the advantages of automatic regulation of the firing schedule.

LOBANOV, A.I.

Improving the design of steel frames for tunnel kiln cars. (MIRA 11:10)
Ogneupory 18 no.6:273-276 Je '53.
(Kilns) (Refractories industry--Equipment and supplies)

USSR / Zooparasitology. Acarina and Insects. Vectors of Pathogenic Agents. Insects. G

Abs Jour: Ref Zhur-Biol., No 6, 1959, 24306.

Author : Lobanov, A. M.
Inst : Ivanovo Medical Institute.
Title : Sites of Wintering and the Seasonal Course of Abundance of Hydrotaea Dentipes Fll., Muscidae.

Orig Pub: Sb. nauchn. tr. Ivanovsk. med. in-ta, 1957, vyp. 12, 464-466.

Abstract: Hydrotaea Dentipes Flln., Muscidae under the conditions of the town of Ivanov winters at the stage of larvae of the III age, in pig manure, more rarely in horse manure and in the earth around garbage pits. Flying begins between the 10th and 20th of May and lasts all summer and fall, until the 1st 10 days of October. Seasonal chan-

Card 1/2

USSR / Zooparasitology. Acarina and Insects. Vectors of Pathogenic Agents. Insects. G

Abs Jour: Ref Zhur-Biol., No 6, 1959, 24306.

Abstract: gas of numbers (according to data of catching them on fly paper) have two peaks: in June and in August. It is assumed that in the course of the year H. dontipes Flln. develops in two generations. Wintering in feces and around garbage pits, flying to fresh feces, "kvas", fish, visiting of garden greens by flies and flying into living areas makes possible the transfer by flies of pathogenic agents of human intestinal diseases. -- I. A. Rubtsov.

Card 2/2

LOBANOV, A.M.

Data on the biology and ecology of Seoptera vibrans L. (Ulidiidae). (MIRA 11:7)
Med.paraz. i paraz.bol. 27 no.3:349-355 My-Je '58

1. Iz kafedry obshchey biologii Ivanovskogo gosudarstvennogo meditsinskogo instituta (dir. instituta Ya.M. Romanov, zav. kafedroy N.V. Khelevin).
(FLIES,
seiptera vibrans (Rus))

LOBANOV, A.M.

Materials on the biology of some species of synanthropous flies of the family lauxaniidae. Nauch. dokl. vys. shkoly; biol. nauki no.4: 30-34 '59. (MIRA 12:12)

1.Rekomendovana kafedroy obshchey biologii i parazitologii Ivanovskogo gosudarstvennogo meditsinskogo instituta.
(Ivanovo--Flies as carriers of disease)

LOBANOV, A.M.

Role of flies in the epidemiology of intestinal infections. Zhur. mikrobiol.epid.i immun. 31 no.1:116-121 Ja '60. (MIRA 13:5)

1. Iz kafedry obshchey biologii Ivanovskogo meditsinskogo instituta.
(DYSENTERY BACILLARY transmission)
(FLIES)

LOBANOV, A.M.

Some observations on the attraction of various baits for exophilic types of synanthropic flies. Med.paraz.i paraz.bol. 29 no.6:720-722 '60. (MIRA 14:2)

1. Iz kafedry obshchey biologii Ivanovskogo gosudarstvennogo meditsinskogo instituta (dir. instituta Ya.M. Romanov, zav. kafedroy N.V. Khelevin).
(FLIES) (INSECT BAITS AND REPELLANTS)

LOBANOV, A.M.

Biology and ecology of Microchryza polita L. (Diptera, Stratiomyiidae). Ent. oboz. 39 no.2:341-348 '60. (MIRA 13:9)

1. Kafedra obshchey biologii Ivanovskogo gosudarstvennogo meditskiskogo instituta, g. Ivanovo.
(Ivanovo--Soldier flies)

LOBANOV, A.M.

Materials on the biology and ecology of Trepidaria petronella L. (Diptera, Tylidae). Zool.zhur. 39 no.6:888-892 Je '60. (MIRA 13:7)

1. Department of General Biology, Ivanovo State Medical Institute.
(Ivanovo--Stilt-legged flies)

LOBANOV, A. M.

Cand Biol Sci - (diss) "Fauna and ecology of exophilic varieties of synantropic flies under the conditions of the city of Ivanovo." Moscow, 1961. 21 pp; (Moscow Order of Lenin and Order of Labor Red Banner State Univ imeni M. V. Lomonosov); 200 copies; price not given; list of author's works on pp 19-20 (13 entries); (KL, 5-61 sup, 184)

LOBANOV, A.M.

Studying the seasonal variation of the abundance of exophilic species of synanthropic flies. K pozn.fauny i flory Ivan.obl. no.1:57-65 '61. (MIRA 15:7)

(Ivanovo--Flies)

LOBANOV, A.M.

Ecology of larvae of Lonchaea chorea F. (Diptera, Lonchaeidae).
K pozn.fauny i flory Ivan.obl. no.1:91-92 '61. (MIRA 15:7)
(Flies)

LOBANOV, A.M.

Hibernation sites of the preimaginal stages of synanthropic flies. Nauch. dokl. vys. shkoly; biol. nauki no.2:36-39 '62. (MIRA 15:5)

1. Rekomendovana kafedroy obshchey biologii Ivanovskogo meditsinskogo instituta.

(FLIES) (HIBERNATION)

LOBANOV, A.M.

Sepsidae and Diptera as synanthropic forms. Biul. MOIP. Otd. biol. 67 no.1:125-128 Ja-F '62. (MIRA 15:3)
(FLIES)
(DIPTERA)

LOBANOV, A.M.

Materials on the ecology and morphology of preimaginal phases of the synanthropic fly Ceroxys urticae L. (Diptera, Otitidae). Ent. oboz. 43 no.1:67-70 '64 (MIRA 17:6)

1. Kafedra obshchey biologii Ivanovskogo Gosudarstvennogo Meditsinskogo instituta, g. Ivanovo.

Lobanov, A. M.

USSR/Physics, Dielectric losses, Polyethylene FD-1217

Card 1/1 Pub. 153-1/22

Author : Mikhaylov, G. P., Lobanov, A. M., and Sazhin, B. I.

Title : Study of dielectric losses of low-frequency relaxation in polyethylene

Periodical : Zhur. tekh. fiz. 24, 1553-1560, Sep 1954

Abstract : The presence of dielectric losses was established in polyethylene at low-frequency relaxation. These losses are bound to the orientation of polar groups located in the crystalline phase of polyethylene. The concentration of polar groups C = O of polyethylene found in crystalline and amorphous phases is computed. Seven references including 3 foreign. Tables; graphs.

Institution :

Submitted : May 25, 1954

5.4600
5.3831

68184
SOV/58-59-5-10841

Translation from: Referativnyy Zhurnal Fizika, 1959, Nr 5, p 134 (USSR)

AUTHOR: Lobanov, A.M.

TITLE: On Measuring the Temperature Dependence of the Tangent of the Loss Angle and Dielectric Constant of Polymers at 3- and 10-cm Wavelengths

PERIODICAL: V sb.: Fiz. dielektrikov. Moscow, AS USSR, 1958, pp 146 - 152

ABSTRACT: The author studied the possibility of using a measuring waveguide-line of the 33-I type with a 51-I power unit for 3-cm wavelengths, as well as an ID-I dielectric meter operating on a 10-cm wavelength, for the purpose of studying the temperature dependence of the tangent of the loss angle tg and dielectric constant ε' in the case of some polymers. To protect the measurement of the parameters of the 33-I line against the effects of heating, a part of the waveguide was kept at a constant temperature by means of a thermostat, while the waveguide section that would heat up was cut off by a mica partition. The cavity resonator of the ID-1 meter was mounted separately from the rest of the instrument. To protect the detector from temperature changes the "coaxial" of the detector head was lengthened by a half-wave and kept at a constant

Card 1/2

68184
SOV/58-59-5-10841

On Measuring the Temperature Dependence of the Tangent of the Loss Angle and Dielectric Constant of Polymers at 3- and 10-cm Wavelengths

temperature by means of a thermostat. The temperature was measured with an accuracy of up to $\pm$ 0.5° by a thermocouple placed on the wall of the waveguide or resonator near the sample. The sample was kept at a constant temperature for 30 - 50 min before measurements were taken. Using the 33-I line, the author was able to study dielectrics with $tg\,\delta = 10^{-3}$ in a temperature range from room temperature to +240°C, and using the ID-1, from -150° to +190°C. It is shown that at a wavelength of 3 cm, $tg\,\delta$ does not depend on the temperature in the case of teflon[15] and low-pressure polyehtylene, whereas it increases with a rise in temperature in the case of styrene.[7] Relaxation dielectric losses are observed at a wavelength of 10 cm in the case of high-pressure polyethylene and a mixture of polyethylene and polyisobutylene. The increase in $tg\,\delta$ with a rise in temperature on a wavelength of 10 cm for polymethyl methacrylate and ebonite is probably caused by an approach to the relaxation-loss maximum situated on the curve at temperatures above +150°C. (In-t vysokomolek. soyedineniy AS USSR, Leningrad).

V.V. Krasnopevtsev

Card 2/2

AUTHORS: Mikhaylov, G. P., Lobanov, A. M. 48-22-3-22/30

TITLE: Dielectric Losses and Polarization of the Polymers (Dielektricheskiye poteri i polyarizatsiya polimerov) Report Theses (Tezisy doklada) Fundamental Theses of the Report are Given in the Article by G. P. Mikhaylov in "Progress in Chemistry" 1955, Nr 24, pp. 875 (Osnovnyye polozheniya doklada izlozheny v stat'ye G. P. Mikhaylova v "Uspekhakh khimii" 24, 875 (1955))

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, 1958, Vol. 22, Nr 3, pp. 323 - 323 (USSR)

ABSTRACT: 1) The investigation of the dielectric losses and of the polarization in the wide range of both frequency and temperature showed that these properties are essentially of relaxation character. 2) According to the electric, the mechanical and other properties it was found that the polymers may be found in three physical states: in vitreous state, in highly elastic state and in viscous state. 3) The investigation of dielectric losses of the polymers in vitreous and in highly elastic state showed that these losses show a series of specific peculiar-

Card 1/3

Dielectric Losses and Polarization of the Polymers. Report Theses.. Fundamental Theses of the Report are Given in the Article by G. P. Mikhaylov in "Progress in Chemistry" 1955, Nr 24, pp. 875

ities. 4) A correlation is frequently observed in connection with the above explanations with the determination of the relaxation time according to the dependency of both temperature and frequency of both the dielectric and the mechanical losses. 5) Synthetic and natural polymers can be both crystalline and also amorphous, according to their structure. This is due to the corresponding properties with the dependences of the losses and of the polarization on frequency and temperature. Such polymers as polyethylenetetraphthalate, polytrifluorethylene and others are found both in crystalline and also in amorphous state. 6) Crystallization reduces considerably the dielectric losses which are correlated with the segmental thermal motion. The dielectric relaxation losses, on the other hand, which reflect the thermic motion of the monomeric terms, or of the polar radicals, change only very slightly. 7) The determination of effective dipole moments

Card 2/3

48-22-3-22/30

Dielectric Losses and Polarization of the Polymers. **Report Theses.** Fundamental Theses of the **Report** are Given in the Article by G. P. Mikhaylov in "Progress in Chemistry" 1955, Nr 24, pp. 875

of the monomeric terms of the polymeric macromolecules showed that the theories established for monomeric systems can be applied for the calculation of the polarization of the polymers. 8) The values of the effective dipole-moments which were calculated for the monomer terms of the polymolecule show that the prevailing change of the value of this moment is caused by an intermolecular interaction.

ASSOCIATION: Institut vysokomolekulyarnykh soyedineniy Akademii nauk SSSR (Institute for High Molecular Compounds, AS USSR)

AVAILABLE: Library of Congress

1. Polymers--Dielectric properties 2. Polymers--Polarization

Card 3/3

LOBANOV, A.M.

AUTHORS: Mikhaylov, G. P., Lobanov, A. M. 57-2-11/32

TITLE: An Investigation of the Dielectric Losses and the Permeability of Polymers Depending on the Temperature in the Centimeter Range of Wave-Lengths (λ = 3,3 and 10 cm) (Izucheniye dielektricheskikh poter' i pronitsayemosti polimerov v zavisimosti ot temperatury v santimetrovom diapazone dlin voln (λ = 3,3 i 10 cm)).
I. A Method for the Measurement of tg δ and ε' in the Temperature Interval of From -100 to 200°C at High Frequency (I. Metodika izmereniy tg δ i ε' v intervale temperatur ot -100 do 200°C na SVCh).

PERIODICAL: Zhurnal Tekhnicheskoy Fiziki, 1956, Vol. 28, Nr 2, pp. 267-272 (USSR).

ABSTRACT: 1.) The measurement of the temperature dependence of tg δ and ε' in polymers was performed at the wave-length λ = 3,3 with the aid of a gauged measuring wave guide of the type 33-И. On this occasion the method of the short-circuited wave guide was employed, where the sample was immediately fastened at the short-circuited plate. The selection of this method was due to the simple calculation formulae for this method. 2.) The dielectric measuring device ИД-1 was used for the investigations with the wave-length λ = 10 cm. This device is destined for the measure-

Card 1/2

An Investigation of the Dielectric Losses and the Permeability of Polymers in Dependence on Temperature in the Centimeter Range of Wave-Lengths (λ = 3,3 and 10 cm). 57-2-11/32
I. A Method for the Measurement of tg δ and ε' in the Temperature Interval of From -100 to 200°C at High Frequency.

ment according to the method of the volume-resonator of dielectrics with small losses at room temperature and λ = 10 cm. -- Under 1.) were investigated: polymethylmethacrylate at 20 and 160°C, and polycaprolacton at 20 and 200°C. Under 2.) the investigations were performed in the range of from -100 to +100°C. The experimental data and the discussion of the results follow in the next paper. The obtained data show a satisfactory accuracy in the measurements of tg δ and ε' depending on the temperature.
There are 3 figures, 2 tables, and 7 references, 5 of which are Slavic.

ASSOCIATION: Institute for High-Molecular Compounds AS USSR, Leningrad (Institut vysokomolekulyarnykh soyedineniy AN SSSR. Leningrad).

SUBMITTED: May 17, 1957.

AVAILABLE: Library of Congress.

Card 2/2 1. Polymers-Dielectric losses 2. Polymers-Permeability

LOBANOV, A. M.

57-3-15/32

AUTHORS: Mikhaylov, G. P., Lobanov, A. M.

TITLE: An Investigation of the Dielectric Losses and the Permeability of Polymers Depending on the Temperature in the Centimeter Range of Wave-Lengths (λ = 3,3 and 10 cm) (Issledovaniye dielektricheskikh poter' i pronitsayemosti polimerov v zavisimosti ot temperatury v santimetrovom diapazone dlin voln (λ = 3,3 i 10 sm). II. Polyethylene, Polytetrafluorethylene, Polystyrene, Polymethylmethacrylate, Polycaprolactam, Ebonite (II. Polietilen, politetraftoretilen, polistirol, polimetilmetakrilat, poldikaprolaktam, ebonit)

PERIODICAL: Zhurnal Tekhnicheskoy Fiziki, 1958, Vol. 28, Nr 2, pp.273-278 (USSR)

ABSTRACT: The results of the investigation of the temperature dependence of some polymers at wave-lengths of 3,3 and 10 cm are given here. A.) Polyethylene, polytetrafluorethylene (teflon) and polystyrene. The tg δ-temperature-curves (λ =10 cm) are given for 1.) "high-pressure" polyethylene, 2.) "low-pressure" polyethylene, 3.) a mixture of 85 % "high-pressure" polyethylene and 15 % polyisobutylene, 4.) polytetrafluorethylene (te-

Card 1/4

57-2-15/32

An Investigation of the Dielectric Losses and the Permeability of Polymers Depending on the Temperature in the Centimeter Range of Wave-Lengths (λ = 3,5 and 10 cm). II. Polyethylene, Polytetrafluorethylene, Polystyrene, Polymethylmethacrylate, Polycaprolactam, Ebonite

flon) and 5.) polystyrene. ad 1.) "high-pressure" polyethylene was subjected to a thermal destruction which caused an increase in tg δ in the maximum-range and permitted to perform the measurements with great accuracy. Curve 2 shows maxima which according to reference 7 correspond to the losses of the medium-frequency and the high-frequency relaxation. ad 2.) and 4.) In both cases the tg δ-values do not change with the rise of temperature. In teflon tg δ is about $2,10^{-4}$ in the range of from +20 to +100°C. ε' also remained constant in teflon and amounted to 2,02 at these temperatures. ad 3.) The value of tg δ as well in the range of the maximum as at room temperature was considerably smaller than in polyethylene. It was difficult to separate the medium-frequency losses from the high-frequency losses on this level. ad 5.) In polystyrene an increase in tg δ was observed on heating, but this can not be called characteristic of polystyrene, as the test was performed with a polystyrene of the block-polymerization. The dielectric losses observed in polyethylene at frequencies of the order of magnitude 10^9 - 10^{10} cycles prove the high flexi-

Card 2/4

An Investigation of the Dielectric Losses and the Permeability of Polymers Depending on the Temperature in the Centimeter Range of Wave-Lengths (λ = = 3,3 and 10 cm). II. Polyethylene, Polytetrafluorethylene, Polystyrene, Polymethylmethacrylate, Polycaprolactam, Ebonite

bility of the macromolecules of this polymer. B.) Polymethylmethacrylate, polycaprolactam, ebonite. 1.) The tg δ-temperature-curve at λ = 10 and 3,3 cm for polymethylmethacrylate from -100°C shows an increase in tg δ. The displacement of the domain with a high increase in losses towards higher temperatures in connection with a decrease in wave-length proves the relaxation-nature of the losses in polymethylmethacrylate. The ε'-values at λ = 3,3 and 10 cm proved to be equal for the entire temperature range investigated. With a rise of temperature, however, ε' increases, which may also be explained by the relaxation-nature of the observed losses. 2.) A similar modification of tg δ and ε' with temperature was observed in polycaprolactam and its copolymer, 95 % caprolactam and 5 % anide. The ε'-values of the copolymer do not differ from those of 100 % polycaprolactam. 3.) The tg δ--temperature- and the ε'-temperature-curves for ebonite show an increase in tg δ and ε' with a rise of temperature. The

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57-2-15/32

An Investigation of the Dielectric Losses and the Permeability of Polymers Depending on the Temperature in the Centimeter Range of Wave-Lengths (λ = = 3,2 and 10 cm). II. Polyethylene, Polytetrafluorethylene, Polystyrene, Polymethylmethacrylate, Polycaprolactam, Ebonite

increase in ε' with temperature also proves the relaxation--nature of the losses observed in ebonite. Summarizing the authors state that with a rise of temperature $tg\ \delta$ due to the occurrence of the dielectric relaxation-losses in the polar polymers increases. There are 5 figures, and 10 references, 8 of which are Slavic.

ASSOCIATION: Institute of High-Molecular Compounds AS USSR, Leningrad (Institut vysokomolekulyarnykh soyedineniy AN SSSR, Leningrad)

SUBMITTED: May 17, 1957

AVAILABLE: Library of Congress

1. Polymers-Dielectric losses 2. Polymers-Permeability

Card 4/4

AUTHORS: Sachin, B. I., Iohanov, [illegible] Gol'dberg, [illegible],
Garminskaya, T. M., Zarakhonov, I. A., [illegible]

TITLE: Investigation of Some Properties of Gamma-Irradiated Polyethylene (Issledovaniye nekotorykh svoystv oblu-chennogo vysokoy-stviyu γ-izlucheniya)

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1958, Vol 28, pp. [illegible]

ABSTRACT: This article contains a report on a comprehensive investigation of polyethylene. These phenomena were studied: the influence of atomic radiation upon the structure and the physical properties, the infrared spectra and the intensity curves describing the dispersion of X-rays and the functions of density, of mechanical and of electrical properties versus temperature. Samples of a basic polyethylene synthesized under high pressure and samples of polyethylene subjected to the γ-radiation of a cobalt source in air were investigated. The sample-bod dimensions of 11 • 30 • 53 mm. The curves of the mechanical strength versus temperature function were recorded with the equipment designed by [illegible] the Scientific Research Institute of Polymerized [illegible]. The [illegible]

Card 1/3

SOV/[illegible]-2-[illegible]-[illegible]

Investigation of Some Properties of Gamma-Irradiated [illegible]

tric losses) versus temperature function [illegible] Frequency range of 400 to $3 \cdot 10^7$ c. The measurements at $\cdot 10^9$ were made on a type KB-1 Q-meter according to the [illegible] method. The differences of the [illegible] merit. The temperature dependence of the mechanical losses at $5 \cdot 10^4$ c were investigated using the method of the torsional vibrator (Ref 3). The study of the infrared spectra of non-stabilized polyethylene and of irradiated polyethylene substantiated the existence of processes earlier observed (Refs 1, 5). Besides, some data bearing on the modification of the structure of the macromolecule of polyethylene were obtained. Investigations of polyethylene subjected to γ-radiation from Co^{60} showed that the modifications of the structure of the macromolecule becomes manifest, when infrared spectroscopy investigations are carried out by a modification of the nature of the $\operatorname{tg}\delta$ and the dielectric- and mechanical losses versus temperature functions. Notwithstanding the production of a "seam" the modification of the density and the percentual content of crystallized polyethylene caused by an irradiation by $(4[illegible]) \cdot 10^6$ r is insignificant. [illegible] and V. M. Chulanovskiy, made [illegible] valuable suggestions [illegible]

Card 2/3

Investigation of Some Properties of Gamma-Irradiated

and V. A. Kozlov made available the samples. There are
figures, 1 table, and 19 references, 10 of which are Soviet.

ASSOCIATION: Nauchno-issledovatel'skiy institut polimerizatsionnykh plastmass. Institut vysokomolekulyarnykh soyedineniy AN SSSR
(Scientific Research Institute of Polymerized Plastics. Institute of High-Molecular Compounds, AS USSR, Leningrad)

SUBMITTED: November 23, 1957

Card 3/3

SOV/32-25-9-36/53

28(5)

AUTHORS: Dmitrochenko, D. A., Lobanov, A. M., Mikhaylov, G. P., Shevelev, V. A.

TITLE: Apparatus for Measuring Dielectric Losses and the Permeability of Solid Dielectrics

PERIODICAL: Zavodskaya laboratoriya, 1959, Vol 25, Nr 9, pp 1121-1124(USSR)

ABSTRACT: The angles of dielectric losses tg δ and the dielectric constant ε within the range of decimeter waves are at present being measured according to two methods - 1) of the coaxial line, 2) of the coaxial resonator (CR) (Refs 1-5). The available constructions of (CR) do not, however, allow measurements within a wide temperature range. A (CR) has been designed, which allows measurements of the values tg δ and ε within a rather wide temperature range. The (CR) consists of a brass cylinder with two covers, the inner rod being soldered with silver to the inner side of the lower cover. The supports and connecting tubes of the (CR) to the generator and detector are mounted opposite each other on the side walls. The inside surfaces of the (CR) are all silver-plated and polished. The Q-factor of the (CR) attains the value 6800, with a theoretical Q-factor of 10,000. From the block diagram of the system (Fig 2) it can be seen that the (CR) is connected via an ab-

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Apparatus for Measuring Dielectric Losses and the Permeability of Solid Dielectrics

sorption-attenuator (with attenuation - 20 decibels) to a generator of type GSS-12 (frequency range 180-1000 megacycles). An amplifier 20-IM is used as indicator. Temperature was measured according to an already described method (Ref 9). The method of calculation to determine the values tg δ and ε is described and measurement results concerning the temperature function of these values, gathered from samples of molten quartz and polytetrafluoro ethylene (Fig 3), are quoted. The results show that the described determination method is suitable for the examination of polymer dielectrics, in which tg δ reaches magnitudes of 10^{-2}. There are 3 figures and 10 references, 5 of which are Soviet.

ASSOCIATION: Institut vysokomolekulyarnykh soyedineniy Akademii nauk SSSR (Institute for High Molecular Compounds of the Academy of Sciences, USSR)

LOBANOV, A.M.

PHASE I BOOK EXPLOITATION SOV/4379

Vsesoyuznaya konferentsiya po fizike dielektrikov. 2d, 1958

Fizika dielektrikov; trudy vtoroy vsesoyuznoy konferentsii (Physics of Dielectrics, Transactions of the 2d All-Union Conference on the Physics of Dielectrics) Moscow, Izd-vo AN SSSR, 1960. 532 p. Errata slip inserted. 5,000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Fizicheskiy institut imeni P.N. Lebedeva.

Ed. of Publishing House: Ye.L. Starchal'nskaya, Tech. Ed.: I.N. Dorokhina. Editorial Board: (Resp. Ed.) G.I. Skanavi, Doctor of Physics and Mathematics (Deceased), and K.V. Filippova, Candidate of Physics and Mathematics.

PURPOSE: This collection of reports is intended for scientists investigating the physics of dielectrics.

COVERAGE: The Second All-Union Conference on the Physics of Dielectrics held in Moscow at the Fizicheskiy institut imeni P.N. Lebedeva (Physics Institute imeni P.N. Lebedev) in November 1958 was attended by representatives of the principal scientific centers of the USSR and of several other countries. This collection contains most of the reports presented at the conference and summaries of the discussions which followed. The reports in this collection deal with dielectric properties, losses, and polarization, and with specific inductive capacitance of various crystals, chemical compounds, and ceramics. Photoelectrets, ferroelectric crystals, and various radiation and irradiation effects on dielectrics are investigated. The volume contains a list of other papers presented at the conference dealing with polarization, losses, and breakdowns of dielectrics, which were published in the journal Izvestiya AN SSSR, seriya fizicheskaya, No. ? and ?, 19?0. No personalities are mentioned. References accompany each report.

Card 1/3

ACCESSION NR: AT4034003 S/0000/63/000/000/0175/0180

AUTHOR: Mikhaylov, G. P.; Lobanov, A. M.

TITLE: Dielectric properties of polydiansebacinate in the ultra-high frequency range

SOURCE: Geterotsepny*ye vy*sokomolekulyarny*ye soyedineniya (Heterochain macromolecular compounds); sbornik statey. Moscow, Izd-vo "Nauka," 1963, 175-180

TOPIC TAGS: polymer, polycondensate, amorphous polycondensate, polydiansebacinate, polymer dielectric property, polydiansebacinate dielectric property, polymer polarization, dipole radical loss, dielectric high frequency behavior, dielectric high temperature behavior

ABSTRACT: The dielectric properties of polydiansebacinate, a polar amorphous polycondensate with a vitrification temperature of 26C, were studied at frequencies of $2 \cdot 10^2$-10^{10} cps and temperatures of -150 to +200C. Results are presented graphically (see Fig. 1 in the Enclosure) and indicate that the dielectric properties at ultra-high frequencies are governed by dipole-radical losses. Dipole-elastic losses were not observed in this polymer above 10^8 cps. The possibility of simultaneous occurrence of two absorption areas, corresponding to dipole-radical and dipole-elastic losses, at a given temperature above the glass temperature was established

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ACCESSION NR: AT4034003

and attests to coexistence of two types of polarization at a given temperature. "In conclusion, the authors express gratitude to Zh. S. Sogomonyanets for polymer synthesis and N. M. Starostina for participation in the measurements." Orig. art. has: 3 graphs.

ASSOCIATION: Institut vy*sokomolekulyarny*kh soyedinenly AN SSSR (Institute of High Molecular Weight Compounds AN SSSR)

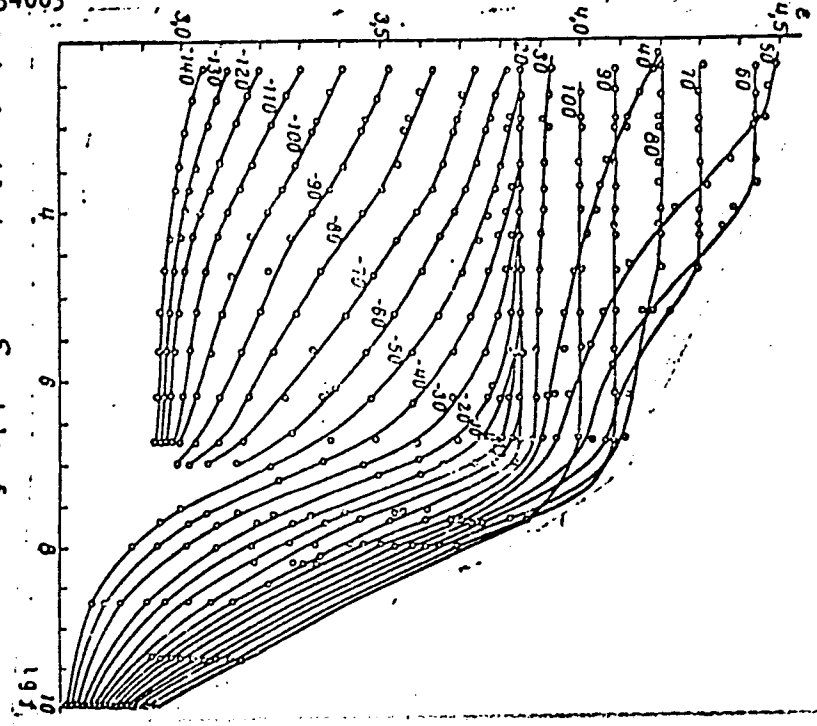
SUBMITTED: 16Nov62 DATE ACQ: 30Apr64 ENCL: 01

SUB CODE: OC NO REF SOV: 008 OTHER: 001

Card 2/3

ACCESSION NR: AT4034003

ENCLOSURE: 01



Card 3/3

ACCESSION NR: AT4034004 S/0000/63/000/000/0181/0185

AUTHOR: Mikhaylov, G. P.; Lobanov, A. M.

TITLE: Calculation of some molecular parameters from data obtained in studies of dipole polarization in polydiansebacinate

SOURCE: Geterotsepny*ye vy*sokomolekulyarny*ye soyedineniya (Heterochain macromolecular compounds); sbornik statey. Moscow, Izd-vo "Nauka," 1963, 181-185

TOPIC TAGS: dipole polarization, polymer polarization, polydiansebacinate, polymer dielectric property, dielectric loss, dipole radical loss, dielectric high temperature behavior, dielectric polymer, specific dipole moment, circular graph method

ABSTRACT: A circular graph procedure (see Fig. 1 in the Enclosure) was used in analyzing experimental data on the dielectric properties of polydiansebacinate to evaluate qualitatively the relaxation period distribution parameter, specific dipole moments, and the magnitudes of $\Delta\varepsilon=\varepsilon_0-\varepsilon_\infty$ (where ε_0 and ε_∞ are equilibrium values of the dielectric constant) and ε''_{max}. The results indicate that the dielectric properties of polydiansebacinate are governed at high temperatures by dipole-radical polarization, i.e. only kinetic units (determining dipole-radical losses) participate in the thermal motion under such conditions (above 40C).

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ACCESSION NR: AT4034004

The increase in ε''_{max} of dipole-radical losses with temperature is due to narrowing of the relaxation period spectrum and an increase in the specific dipole moment. Dipole-radical losses cannot be described in terms of the theory of dielectrics suggested by G. Frelikh (Teoriya dielektrikov. Izd. In. Lit., 1960). Orig. art. has: 5 graphs and 3 formulas.

ASSOCIATION: Institut vy*sokomolekulyarny*kh soyedinenly AN SSSR (Institute of High Molecular Weight Compounds AN SSSR)

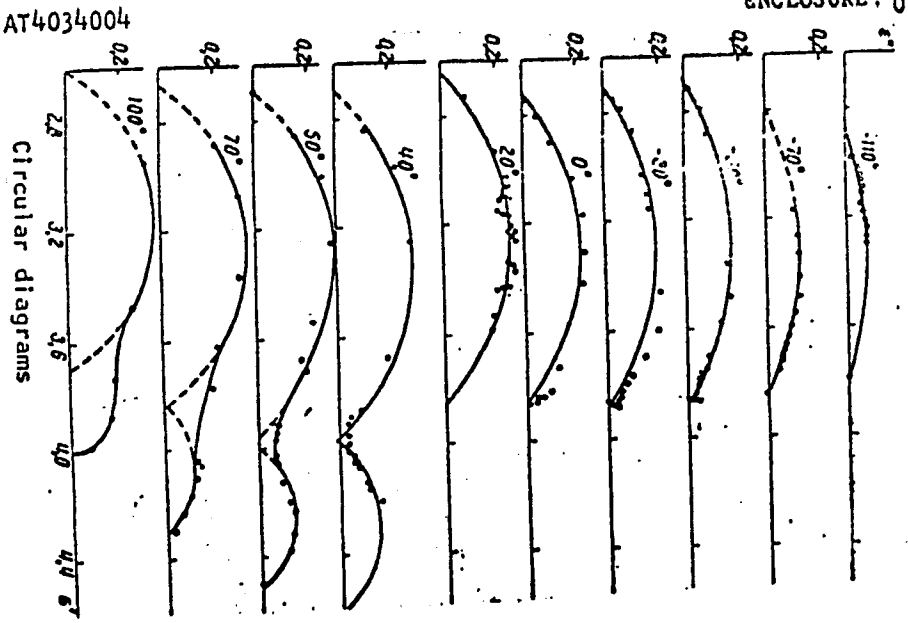
SUBMITTED: 16Nov62 DATE ACQ: 30Apr64 ENCL: 01

SUB CODE: OC NO REF SOV: 001 OTHER: 006

Card 2/3

ENCLOSURE: 01

ACCESSION NR: AT4034004



Card 3/3

MIKHAYLOV, G.P.; LOBANOV, A.M.

Molecular relaxation in polymers far above vitrification temperature. Fiz. tver. tela 5 no.7:1917-1923 Jl '63. (MIRA 16:9)

1. Institut vysokomolekulyarnykh soyedineniy AN SSSR, Leningrad.
(Polymers—Dipole moments)

DMITROCHENKO, D.A.; LOBANOV, A.M.; SHEVELEV, V.A.

Apparatus for measuring the temperature dependencies of the dielectric constant ε' and dielectric loss $tg\,\delta$. Zav.lab. 29 no.12:1495-1497 '63. (MIRA 17:1)

1. Institut vysokomolekularnykh soyedineniy AN SSSR.

ACCESSION NR: AP4012183 S/0191/64/000/002/0009/0012

AUTHORS: Mikhaylov, G. P.; Lobanov, A. M.; Shevelev, V. A.; Orlova, T. P.

TITLE: Dependence of tgδ and ε' of polyethylene on temperature in the range of ultra high frequencies

SOURCE: Plasticheskiye massy*, no. 2, 1964, 9-12

TOPIC TAGS: polyethylene, ultra high frequency relaxation, high frequency relaxation, dipole losses. testing of plastic

ABSTRACT: For polyethylene rolled more than one hour at 160 C a field of maximum tgδ at a frequency of 10^9 hertz is observed at room temperature. At frequencies of 3×10^7 and 4.7×10^8 hertz, tgδ of polyethylene at temperature intervals of -60C to +160C passes through a peak zone three times; two types of losses at these two frequencies can be attributed to losses of mean frequency and high frequency relaxation, combined with orientational polarization in amorphous zones of polyethylene. Also at these frequencies new dipole losses appeared which are not to be attributed to three previously known

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ACCESSION NR: AP4012183

types of losses in polyethylene. It is also observed that during heat treatment of low density polyethylene in the presence of atmospheric oxygen, tgδ in a maximum field at specified frequencies increases proportionally with time. In these specimens of polyethylene one wide field of tgδ appears as a result of application of the three types of losses noted in the original polyethylene. Uneven changes typical of dipole polarization were observed first at temperature dependence ε' of polyethylene. In polyethylene at room temperature, tgδ passes through the maximum field in the vicinity of frequency 4.7×10^8 hertz. The amount of $(\text{tg}\delta)_{max.}$ is extremely sensitive to the content of polar additions combined with macromolecules. This work served for a period as one of the foundations for recommendations for the All Union State Standard for testing of plastics at a frequency of 4.7×10^8 hertz. Orig. art. has: 4 Figures

ASSOCIATION: None

SUBMITTED: 00 DATE ACQ: 26Feb64 ENCL: 00

SUB CODE: MA NR REF SOV: 015 OTHER: 005

Card 2/2

ACCESSION NR: AP4037283 S/0190/64/006/005/0868/0870

AUTHORS: Mikhaylov, G. P.; Lobanov, A. M.; Shevelev, V. A.; Orlova, T. P.

TITLE: The relation between epsilon prime and tan delta of Teflon and temperature at the frequency of $4.7 \cdot 10^8$ cycles per second

SOURCE: Vy*sokomolekulyarny*ye soyedineniya, v. 6, no. 5, 1964, 868-870

TOPIC TAGS: polytetrafluorethylene, Teflon, epsilon prime Teflon, tan delta Teflon

ABSTRACT: Measurements obtained using the method described by D. A. Dmitrochenko, A. M. Lobanov, G. P. Mikhaylov, and V. A. Shevelev (Zavodsk. lab., 1959, No. 9, 1121) are presented on Fig. 1 of the Enclosures. Here curves 1, 1', 5, and 6 pertain to the original annealed Teflon samples, curves 2 and 2' to the hardened samples, curves 3 and 3' to the compressed samples, and curves 4 and 4' to samples cut from the necked portion of samples subjected to tension. The low concentration of admixtures is probably responsible for the absence of tan δ maximum at 323K on curve 6. The increase of tan δ_{max} in hardening indicates that the observed losses are related to orientation processes in the amorphous phase of the polymer. The value of ε' diminished during hardening, compressing, and

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ACCESSION NR: AP4037283

elongating of the samples. Figure 2 of the Enclosures shows the relations between the logarithm of frequency and the reciprocal temperature at which tan δ_{max} is constant. The activation energy calculated from the straight line segments of this curve is equal to 18.5 kcal/mole and 12 kcal/mole (below and above 248K, respectively). Orig. art. has: 2 graphs.

ASSOCIATION: Institut vy*sokomolekulyarny*kh soyedineniy AN SSSR (Institute of High-Molecular Compounds, AN SSSR)

SUBMITTED: 10Jun63 / ENCL: 03

SUB CODE: GC NO REF SOV: 003 OTHER: 015

Card 2/5

ENCLOSURE: 01

ACCESSION NR: AP4037283

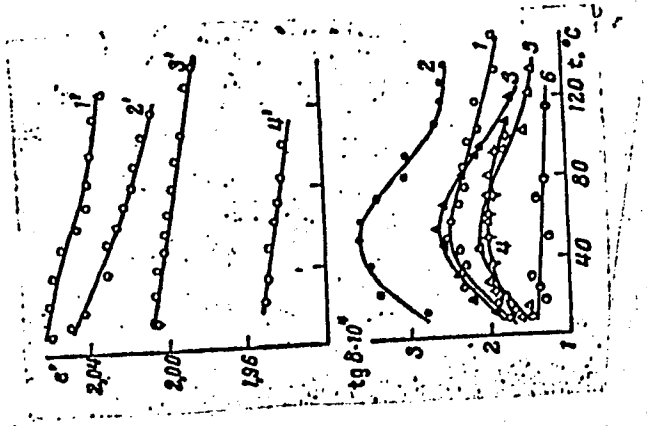

Fig. 1. Relation of ε' and tan δ of Teflon to temperature at the frequency of 4.7×10^8 cps.

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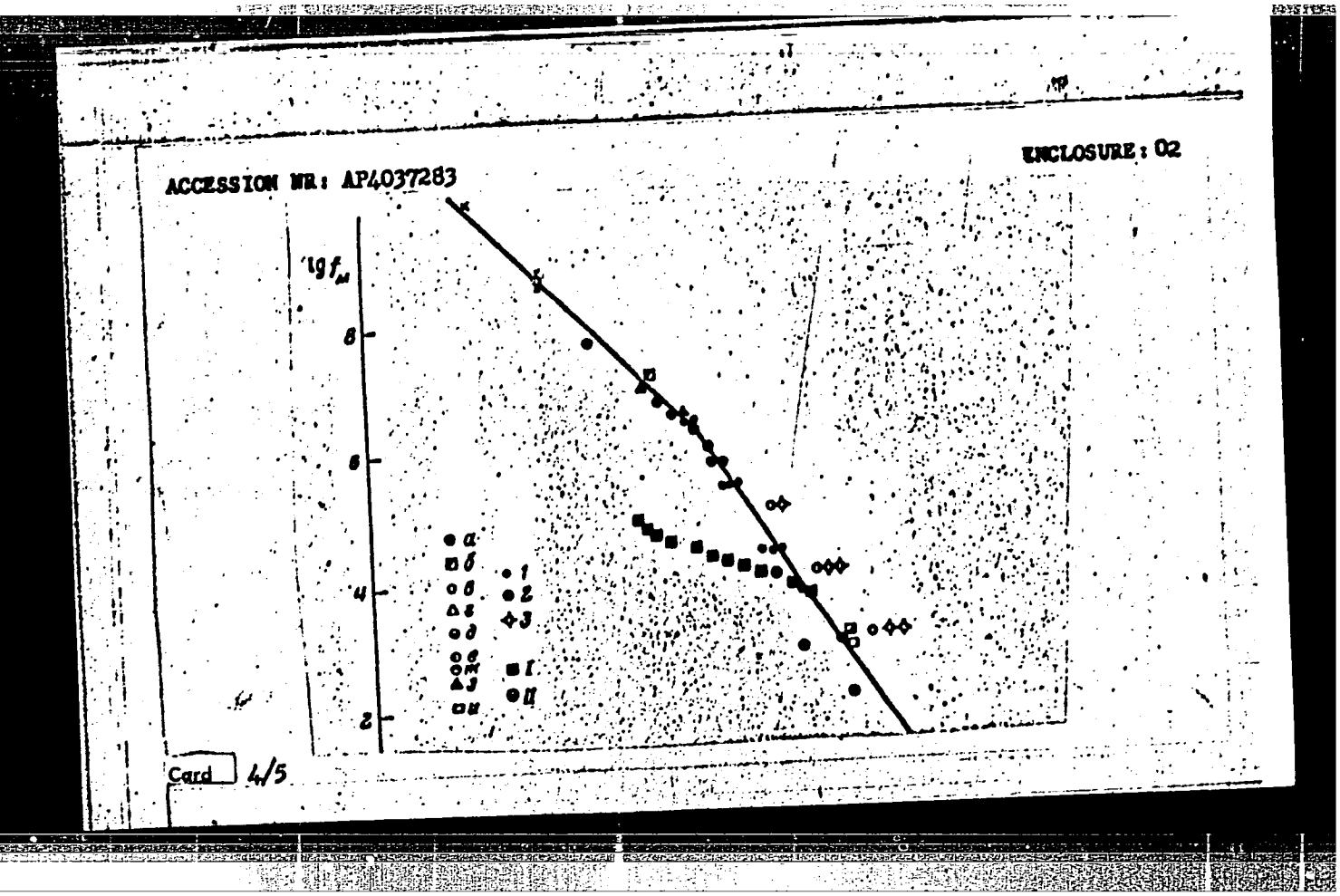

ACCESSION NR: AP4037283

ENCLOSURE: 03

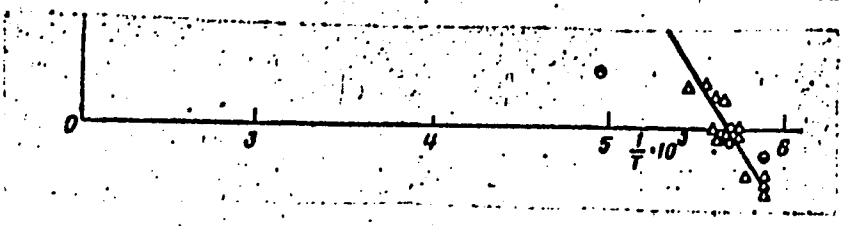

Fig. 2. Relation of log f_m to 1/T for Teflon.

Mechanical determinations: a - [2, 3]; δ - [7]; B - [8, 9]; 2 - [10, 12]; ∂ - [13]; e - [14]; Ж - [15]; 3 - [16]; u - [11]. Dielectrical determinations: 1 - [2, 3]; 2 - [4]; 3 - [5, 6, 7]. Data obtained with the method used by R. K. Eby and K. M. Sinnot (J. Appl. Phys., 32, 1756, 1961) and by J. G. Powles and J. A. Kail (J. Polymer Sci., 31, 183, 1958).

5/5

Card

SAVINOV, Vyacheslav Alekseyevich; LOBANOV, Antoniy Nikolayevich;
PUDOZHGORSKIY, V.K., red.

[Wild animals of Vologda Province] Zveri Vologodskoi oblasti.
Vologodskoe knizhnoe izd-vo, 1958. 206 p. (MIRA 12:2)
(Vologda Province--Animals)

PHASE I BOOK EXPLOITATION SOV/5070

Lobanov, Aleksey Nikolayevich, Professor, Doctor of Technical Sciences

Fototriangulyatsiya s primeneniyem elektronnoy vychislitel'noy mashiny (Phototriangulation With the Application of an Electronic Computer) Moscow, Geodezizdat, 1960. 144 p. 3,000 copies printed.

Ed.: M. D. Konshin; Ed. of Publishing House: V. I. Vasil'yeva; Tech. Ed.: V. V. Romanova.

PURPOSE: This textbook is intended for students of phototopography. It may be used for the study of photogrammetry and for solving photogrammetric problems.

COVERAGE: The author presents the theory of the analytic method for three-dimensional phototriangulation with the use of a stereocomparator and electronic computer. Results of experimental work carried out by this method, using the "Ural" and "Strela" computers, are described and analyzed. Fundamental

Card ~~1/5~~

information on electronic computers is given and the "Ural" and "Strela" computers are described. At the author's suggestion the method was developed jointly by kafedra fotogrammetrii (department of photogrammetry), aerofototopograficheskiy otryad (aerial photo topographic detachment), vychislitel'nyy tsentr (computing center), and nauchno-issledovatel'skiy institut (scientific-research institute) of the VTS (Military Topographic Service). The following persons took part in the work: A. A. Magamedaliyev, I. A. Shmidt, Ye. V. Filimonov, G. V. Lazarev, M. N. Bulushev, V. A. Arestenkov, N. P. Gramenitskaya, and M. U. Brodina, Engineers; Ye. P. Shurygin, K. A. Averkiyeva, V. G. Popova, V. V. Shchukina, N. Ye. Semenova, and V. I. Kruchenova, Technicians; A. P. Upit, M. A. Veksler, N. P. Prokof'yev, L. I. Shatrovskiy, A. F. Shleyning, Ye. M. Moiseyev, L. S. Gurin, and S. I. Mamontov assisted in organizing and conducting the experimental work. The author thanks M. D. Konshin and G. B. Romanovskiy, Professors; P. S. Pasha and M. N. Yutanov, Docents; and Ye. M. Rabovskiy, and A. V. Kalev, Candidates of Technical Sciences. There are 41 references: 40 Soviet and 1 English.

LOBANOV, A.N.

Phototopography. Part II, Moscow (1934)

LOPANOV, A. N., SHELYAGIN, I. N., ZHUKOV, Yu. P. and BORDOYUKOV, M. P.

"Aerophototopography," Moscow, 1947.

LOBANOV, A. N.

"Phototopography," Moscow, 1949

LOBANOV, A.N., professor; URMAYEV, N.A., redaktor; VOROB'YEVA, L.M., redaktor; SHLENSKIY, I.A., tekhnicheskiy redaktor

[Theory of transformation of a pair of photographs and making maps with rectified pictures] Teoriia transformirovaniia pary snimkov i sozdanie karty po transformirovannym izobrazheniiam. Moskva, Izd-vo geodezicheskoi lit-ry, 1954. 103 p. (MLRA 7:10)
(Potographic surveying)

LOBANOW, A. : KONSZYN, M.

"Methods of Making Topographic Maps Based on Aerial Photographs and Photogrammetry", P. 3. (GEODEZJA I KARTOGRAFIA, Vol. 3, No. 1, 1954, Warszawa, Poland)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 4, No. 1, Jan. 1955, Uncl.

[redacted], A.; [redacted], M.

"Making Topographic Maps on the Basis of Aerial Photographs and Photogrammetry. Tr. from the Russian", P. 209, ([redacted], Vol. 6, No. 4, 1954, Budapest, Hungary)

SO: Monthly List of East European Accessions (EEAL), LC, Vol. 4, No. 3, March 1955, Unclassified.

LOBANOV, A.N.

ALEKSAPOL'SKIY, Nikolay Mikhaylovich, zasluzhennyy deyatel' nauki i tekhniki RSFSR[deceased]; LOBANOV, A.N., doktor, tekhnicheskikh nauk, professor, redaktor; VASIL'YEVA, V.I., redaktor izdatel'stva; ROMANOVA, V.V., tekhnicheskiy redaktor.

[Photogrammetry] Fotogrammetriia. Pod obshchei red. A.N. Lobanova. Moskva, Izd-vo geodez. lit-ry. Pt. 1 1956. 411 p. (MLRA 10:4)
(Photogrammetry)

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KOZHEVNIKOV, Nikolay Petrovich; ZAITOV, Izamil Rizauddinovich; LOBANOV, A.N., prof., doktor tekhn.nauk, red.; VASIL'YEVA, V.I., red.izd-va; ROMANOVA, V.V., tekhn.red.

[Photogrammetry] Fotogrammetriia. Pod obshchei red. A.N.Lobanova. Moskva, Izd-vo geodez. lit-ry. Pt.2. 1957. 139 p. (MIRA 11:5)
(Photogrammetry)

SOV/154-58-2-5/22

AUTHOR: Lobanov, A. N., Professor, Doctor of Technical Sciences

TITLE: The Use of Electronic Computers in Photogrammetry (Primeneniye elektronnoy vychislitel'noy mashiny v fotogrammetrii)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Geodeziya i aerofotos"yemka, 1958, Nr 2, pp 57-65 (USSR)

ABSTRACT: Here, one of the principal questions of the analytical method of three-dimensional phototriangulation - the determination of the elements of mutual adjustment of aerial photographs - is approached. For the solution of this problem by means of an electronic computer the method of successive approximation is used (Ref 1). The determination of the elements of mutual adjustment by means of the method of approximation is described. Seven model surveys were taken for testing the method described here, for the determination of the elements of mutual adjustment of aerial photographs, as well as for checking the calculations of the electronic computer by a programmed check. The elements of mutual adjustment of the model surveys were determined by means of the method described in the article. This tedious work was done by the computer operators of the Depart-

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ment of Aerotopography K. A. Averkiyeva, V. G. Popova under the supervision of I. A. Shmidt. There are a number of electronic computers in the USSR. For one of these, a program was developed by Engineer A. A. Magamedaliyev in accordance with the theory described in this article. - The author has developed a new method of successive approximation which makes it possible to find the elements of mutual orientation without determining the trigonometrical functions. In this method the direction cosines are represented as functions of the transverse parallaxes measured at 6 standardized points on pairs of aerial photographs. The process is described. - The first experiments (described in the present article) for the solution of photogrammetrical problems by means of an electronic computer were carried out by the following persons: M. K. Kudryavtsev, F. Ya. Gerasimov, P. A. Losyukov, Z. A. Ioffe, A. P. Upit, N. P. Prokof'yev, L. I. Shatrovskiy, Ye. M. Moiseyev, L. S. Gurin, M. A. Veksler. There are 3 figures, 2 tables, and 2 references, 2 of which are Soviet.

ASSOCIATION: Voyenno-inzhenernaya akademiya im. V. V. Kuybysheva (Military Engineering Academy imeni V. V. Kuybyshev)

The Use of Electronic Computers in Photogrammetry SOV/154-58-2-5/22

SUBMITTED: February 8, 1958

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LOBANOV, A.N

AUTHOR: Feklistov, Ye. M., Engineer SOV/154-58-2-18/22

TITLE: Scientific and Technical Conference of the MIIGA i K (Nauchno-tekhnicheskaya konferentsiya MIIGA i K) III

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Geodeziya i aerofotos"yemka, 1958, Nr 2, pp 115-116 (USSR)

ABSTRACT: In the section for aerophoto-geodetical and photogrammetrical instruments the following persons gave lectures: Professor M. M. Rusinov on "New Tendencies in the Production of Objectives in Instruments Used for Cartographical Aerial Photography." Professor A. N. Lobanov: "On Three-Dimensional Phototriangulation and the Use of Electronic Computers." Professor A. P. Mashkovich: "On Some Theoretical Statements With Regard to Questions of Photogrammetry in Connection With the Production of Precision Instruments for These Purposes." Engineer M. V. Mazov: "The Radio-Synchronizer for Simultaneous Photos From Two Airplanes." Professor K. S. Lyalikov: "Apparatus and Laboratories for Aerial Methods of the AS USSR for the Study of Spectral Intensity." Docent N. P. Zakaznov: "Making the Transformation of Aerial Photographs Automatic." Engineer L. P. Churayev: "Automatic Control of the [illegible] Exposure." Engineer I. G.

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Scientific and Technical Conference of the MIIGA i K. III

Indichenko: "Stereophotogrammetrical Coupled Cameras." In a joint session of the sections for geodetical and photogrammetrical instruments Engineer L. Ye Mindlin read a paper on "The Method of Heterodyne Phases in Geophysical Photos." Docent B. N. Rodionov reported on "The Problem of Making Aerial Photography Automatic."
Altogether, there were 32 lectures and reports given. 52 delegates participated in the discussions.

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AUTHOR: Lobanov, A. N., Doctor of Technical Sciences SOV/6-58-11-5/15

TITLE: Utilization of Electronic Computers in Aerial Phototriangulation (Primeneniye elektronnoy vychislitel'noy mashiny pri prostranstvennom fototriangulirovanii)

PERIODICAL: Geodeziya i kartografiya, 1958, Nr 11, pp 29-42 (USSR)

ABSTRACT: The general purpose of aerial phototriangulation is the determination of geodetic coordinates of points of the terrain from aerial photographs. The following three special problems are encountered in aerotriangulation: 1) Determination of the elements of mutual orientation of aerial photographs. 2) Construction of the relief model. 3) External orientation of the model according to triangulation stations; ad 1) In this work the method due to Professor N. A. Urmayev is used, which guarantees high accuracy. The principal features of this method are described. ad 2) If the coordinates of corresponding points and the elements of mutual orientation of pairs of aerial photographs are known, the relief model can be constructed on any scale. ad 3) The external orientation of the model, that is to say the transition from the photogram-

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metric to the geodetical coordinates with respect to the triangulation stations is exposed. The theory presented of an analytical method of aerotriangulation is intended to be used with an electronic computer. In order to make an empirical check of the formulae presented on which the method is based, five model constructions were calculated. The model constructions and the establishment of the row of aerotriangulation were carried out by K. A. Averkiyev and V. G. Popov, computers at the aerial topography department under the supervision of I. A. Shmidt and the author. The check showed that the model constructions can also be used for the control of the computing program of the electronic computer and for a check of the accuracy of this machine. In the third section a short reference is made of the large Soviet Electronic Computer, the computer M . 2 , "Strela", and "Ural" and the "Ural" type is briefly described. The computing program is also given. In the fourth section the establishment of a triangulation row from model surveys is described. This work was carried out in order to check the method of aerotriangulation, the accuracy of the electronic computer "Ural" and to

determine the time required by the machine for the establishment of a net. The investigations permit to make the following statements: 1) The problem of determining the coordinates of terrain points according to the method described is solved exactly without methodical errors. 2) The computing program of the electronic computer has been compiled correctly. 3) The electronic computer operates satisfactorily. In the fifth section the establishment of a triangulation row according to actual aerial photographs is described. The second row of aerotriangulation was established by the electronic computer according to seven actual aerial photographs of a hilly terrain. The coordinates and the parallaxes of the points in the aerial photographs were measured by Engineer N. P. Gramenitskaya. The conclusions drawn in this paper concerning the establishment of supporting nets with the help of the electronic computer "Ural" are based upon the test runs and must be considered to be of a preliminary nature. There are 8 figures and 1 Soviet reference.

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3(4), 28(2)

AUTHOR: Lobanov, A. N., Professor, Doctor of Technical Sciences

TITLE: Spatial Phototriangulation With the Use of an Electronic Computer (Prostranstvennaya fototriangulyatsiya s primeneniyem elektronnoy vychislitel'noy mashiny)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Geodeziya i aerofotos"-yemka, 1959, Nr 2, pp 57 - 69 (USSR)

ABSTRACT: The author of the present paper deals with an analytical precision method suggested by himself for spatial phototriangulation. The results obtained from the experimental application of this method are also given. The method is based on the exploitation of the exact connections existing between aerial photographs overlapping one another, and requires the use of an electronic computer. In principle, the procedure is as follows: measurement of the coordinates and parallaxes of the image points, determination of the elements of the reciprocal orientation of photographs, computation of the photogrammetric net point coordinates, computation of geodetic

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coordinates of the ground points to be determined. The first operation requires the use of the stereocomparator, and an electronic computer is used for all other operations. The photomeasuring results and other initial data are recorded on a perforated tape. Computation results are printed on a paper strip. The elements of the reciprocal orientation of the photographs are determined according to the method by Professor N. A. Urmayev by way of a successive approximation. The various computation courses are more closely described. A short description is given of the electronic computer "Ural". The first "Ural" were manufactured in 1956. Since 1957 this type is being produced on a large scale. It is a small automatic digital computer and carries out operations with 9-figure numbers at a rate of 100 operations per second. Its memory consists of 1024 cells on a magnetic drum, and there is furthermore an external memory, a magnetic tape, with 40000 cells. It perforates 240 impulses per hour, and introduces 70 numbers per second. It contains 800 tubes, 3000 germanium triodes, and uses up about 8 kw. It occupies an area of about 40 m^2.

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Basing on the above-mentioned theory of the analytical method of spatial phototriangulation, a computation program for the "Ural" was compiled by Engineer A. A. Magamedaliyev with the author's participation. A description is here given of this program which includes about 1500 impulses. Two series of a spatial phototriangulation were worked out with the aid of the "Ural"; one with model photographs and the other one with real photographs. The model photographs were prepared by K. A. Averkiyeva and V. G. Popova under the supervision of I. A. Shmidt. The results obtained on setting up these two series are given. The coordinates and parallaxes of the image points were measured by Engineer N. P. Gramenitskaya. The results obtained are only provisional. These first works were carried out with the active cooperation of M. K. Kudryavtsev, P. A. Losyukov, F. Ya. Gerasimov, Z. A. Ioffe, A. P. Upita, N. P. Prokof'yev, L. I. Shatrovskiy, Ye. M. Moiseyev, L. S. Gurin and M. A. Veksler. The analytical method in question is accurate and does not exhibit any relevant methodical errors. The accuracy in setting up photogrammetric nets according to this method depends solely

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on the errors contained in the initial data. The "Ural" makes it possible to obtain directly the geodetic coordinates of the points to be determined. The analytical method of spatial phototriangulation places no restrictions upon the values of the elements of the photographic orientation. It may be also used for the solution of non-topographical tasks, e.g. for the determination of airplane trajectories. There are 5 figures.

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